

TITLE OF THE INVENTION

The subjoined documents contain specifications, preferred embodiments, detailed drawings, and claims for my invention which is named:

Computer Program Operation Interface.

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BACKGROUND OF THE INVENTION

1 This invention relates to a Computer Program Operation Interface which allows free and independent use of all five digits of the hand and is anatomically friendly to the user, minimizing functional damage caused by continual use of the hand in an unnatural position.

2 In view of the fact that numerous debilitating injuries occur to computer operators from repeated strain on the muscles and tendons of the hand, this invention has a unique shape which allows the hand to function in a natural, relaxed position while in use dramatically reducing the possibility of physical injury such as carpal tunnel syndrome. In view of the fact that all such devices currently available require the thumb and baby finger to stabilize and manipulate while the fingers are extended in an unnatural position, this invention was designed to require only the palm and wrist to stabilize and manipulate the device leaving all five fingers free to perform operational functions.

3 Because physical injury to workers caused by continual unnatural use of the hands is devastating to business both financially and in terms of available manpower, and because computer programs are becoming ever more complex begging more functional interface devices, this invention is conceived to address these needs and make what is old obsolete.

SUMMARY OF THE INVENTION

4 According to the present invention and forming a primary objective thereof, a uniquely designed Computer Program Operation Interface is herein described which is attractive in the workplace which allows the computer program operators hand to func-

tion in a natural, relaxed position and which provides expanded functionality and speed for advanced software programs.

5 One objective of the invention is accomplished by a uniquely shaped body which fits comfortably into the palm of the operator's relaxed hand allowing it to function in a natural position relieving excess tension on the muscles and tendons of the hand. This ergonomically friendly shape will dramatically reduce injury to workers saving employers millions of dollars in medical expenses and damage awards. The exact shape of the body of the device is to be determined by consulting with plastic surgeons, orthopedic doctors, and experts in the field of carpal tunnel syndrome.

6 Another objective of the invention is accomplished because the device fits comfortable into the palm of the relaxed hand allowing it to be stabilized and manipulated by only slight movements of the wrist thus freeing all five digits to perform individual program functions. Four industry standard on/off microswitches are operated by four individual finger pads and two X-Y axis rollerball sensors are included, one operated by the movement of the wrist and the other by the thumb. These six switches allow optimum use of the operator's hand.

7 The preferred embodiments of this invention are all contained in two separate components: the molded plastic base and the molded plastic covering shell. The on/off microswitches, the two X-Y axis rollerball sensors, and the interior wiring discussed herein are all industry standard components compatible with the objectives of the invention.

8 The invention will be better understood and the advantages will be apparent from the following descriptions presented in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

9 FIG. 1 is a straight on front view of the assembled invention embodying principles of the invention.

10 FIG. 2 is a bottom view of the assembled invention embodying principles of the invention.

11 FIG. 3 is a top left perspective view of the assembled invention embodying principles of the invention.

- 12 FIG. 4 is a top right perspective view of the assembled invention embodying principles of the invention.
- 13 FIG. 5 is a top left perspective view of the molded base only, separated from the covering shell, embodying principles of the invention.
- 14 FIG. 6 is a top left perspective view of the molded covering shell only, separated from the base, embodying principles of the invention.
- 15 FIG. 7 is a sectional view on line 7 - 7 of FIG. 2 of the assembled invention, a vertical section across the length, embodying principles of the invention.
- 16 FIG. 8 is a sectional view on line 8 - 8 of FIG. 2 of the assembled invention, a vertical section along the length, embodying principles of the invention.
- 17 FIG. 9 is a sectional view on line 9 - 9 of FIG. 1 of the assembled invention, a horizontal section along the length, embodying principles of the invention.
- 18 FIG. 10 is a list of embodiments of the invention identifying the character numbers used in the detailed drawings.

DETAILED DESCRIPTIONS OF PREFERRED EMBODIMENTS

19 With particular reference to the drawings and first to the embodiments of FIGS. 1 - 4, the invention consists of a molded plastic base (11) and molded plastic covering shell (12). Into the base (11) are installed four on/off microswitches (not shown) which are located directly under and operated by four finger pads (15) molded into the left side of the covering shell (12). There are also installed into the base (11) two industry standard X-Y rollerball sensors (17), one on the floor of the base (11) and one on the vertical tab (22) extending up from the floor of the base (11). These six switches are appropriately wired into an industry standard serial patch cord (not shown). The covering shell (12) is molded of high impact plastic and is shaped to fit comfortably into the palm of a relaxed hand. It fits snugly onto the base (11) resting on the stepledge (23) which is located along the top of the base apron (16) and around the vertical tab (22). When installed, the covering shell (12) is held in place by the assembling screw (28). The rollerball

(13) of the X-Y rollerball sensor (17) is held in place by the snap-lock retainer ring (14).

20 FIGS. 1 and 2 illustrate the assembled invention showing the covering shell (12) "bulging out" around the middle making it larger than the perimeter of the base (11) to fit more comfortably into the operator's hand. The actual physical shape and size of the body of this device will be determined by consulting with anatomical experts.

21 FIG. 5 is a top left perspective view of the base (11), separated from the covering shell (12), with the embodiments but without the electronic parts installed. It features the base apron (16) on top of which is the stepledge (23) onto which the covering shell (12) rests when installed. This figure illustrates the vertical tab (22) containing orifices (18) of the proper size and with the proper appurtenances to receive an industry standard X-Y axis rollerball sensor (not shown). A similar orifice is provided in the floor of the base (11).

22 FIG. 5 also illustrates an interior shortwall (24) just inside the stepledge (23) which extends around the perimeter of the base (11) and behind the vertical tab (22) containing four orifices (20) of the proper size and with the proper appurtenances to receive an industry standard on/off microswitch (19-not shown) and an orifice in the rear (25) to allow exit of an industry standard serial patch cord (not shown). The four orifices (20) are located directly under the finger pads (15) molded into the left side of the covering shell (12). The base pillar (21) rises up from the floor of the base (11) and contains a threaded hole (26) in the top to receive the assembling screw (28) which anchors the covering shell when installed.

23 FIG. 6 is a top left perspective view of the molded covering shell (12) separated from the base (11) with its embodiments. It is molded of high impact plastic to the exact size and shape determined by consulting with experts in the anatomy of the hand. The bottom edge of the covering shell (12) conforms to the exact size and shape of the stepledge (23) and vertical tab (22) onto which it rests when installed. The cov-

ering shell (12) contains a screw hole (27) in the top that aligns with the threaded hole (26) in the top of the base pillar (21) through which the assembling screw (28) is installed. Four finger pads (15) are molded into the left side of the covering shell (12) so that all of the material is omitted from the vertical lines of separation (29) completely separating the finger pads (15). Only part of the material is omitted from the horizontal line of separation (30) above the finger pads (15) leaving a plastic hinge at the top of each finger pad (15) and leaving them attached to the covering shell (12). A U-shaped cut out (not shown) is provided at the bottom rear of the covering shell (12) to fit over the serial patch cord which exits from the base (11) through the orifice (25) in the back of the shortwall (24).

24 FIG. 7 is a sectional view across the length of the assembled invention on line 7 - 7 of FIG. 2. It illustrates the installed covering shell (12), the base (11), the threaded hole (26) in the base pillar (21), an on/off microswitch (19) installed on the shortwall (24), the screw hole (27) in the top of the covering shell (12), the base apron (16), and the stepledge (23). The horizontal line of separation (30) along the top of the finger pads (15) is shown on the left side of the covering shell (12) with only part of the material omitted leaving the finger pads (15) attached to the covering shell (12) by a plastic hinge at the top of each finger pad (15).

25 FIG. 8 is a cross section view vertically along the length of the assembled invention on line 8 - 8 of FIG. 2. It illustrates the base (11), the installed covering shell (12) with a screw hole (27) at the top, the threaded hole (26) in the top of the base pillar (21), the base apron (16), the stepledge (23), the shortwall (24), the vertical tab (22) onto which a rollerball (13) and a snap-lock retainer ring (14) are installed, and the rollerball (13) and snap-lock retainer ring (14) in place on the floor of the base (11).

26 FIG. 9 is a cross section view horizontally along the length of the of the assembled invention on line 9 - 9 of Fig. 1. It illustrates the base (11), the installed covering shell (12),

the vertical line of separation (29) between the finger pads (15), the shortwall (24) onto which four industry standard on/off microswitches (19) are installed, the base pillar (21), the rollerball (13) and snap-lock retainer ring (14) in place on the floor of the base (11), and the vertical tab (22) with the rollerball (13) and snap-lock retainer ring (14) in place.

27 FIG. 10 is a list of principle embodiments of the invention identifying the character numbers used in the detailed drawings.

28 It is understood that the forms of my invention herein shown and described are to be taken as preferred embodiments of the same and that various changes in size, shape, or arrangement of parts may be resorted to without detracting from the spirit of my invention or from the scope of the subjoined claims. The industry standard switches, sensors, and interior wiring included in these descriptions are not part of the patent but are necessary inclusions to fully disclose the objectives and preferred embodiments of the invention. The molded base (11) and molded covering shell (12) are the sole and complete components of this invention and all of the objectives and principle embodiments of the same are contained therein.